

### **DETAILED ACTION**

The finality of the Office action mailed on October 18, 2007 is withdrawn. Claims 5 and 36 are cancelled, claims 9-23, 35 and 37-38 are pending, and claims 12-15 and 17-23 remain withdrawn from further consideration.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 38 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim depends on cancelled claim 5.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-11, 22-23, 35 and 37-38 as understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Dussinger et al in view of Yamamoto et al, Eastman and Burgess et al.

Dussinger et al discloses a flat heat pipe comprising opposing walls 18, 20 with separated posts 26 and sintered copper wick 30 to define an interior space with a vapor and fluid channel; but does not disclose posts separate from the opposing walls, ceramic particle wick and DCB bonding.

Yamamoto et al (Figure 6) discloses a heat pipe comprising opposing walls 6, 7 (e.g. Figure 2) with separated posts 10 to define an interior space, wherein the posts are separately formed from the walls (column 12, lines 52-56) for the purpose of ease of manufacture. Note that Figure 7 discloses the separately formed posts and integrally formed protrusions are obvious variants of one another.

Eastman discloses a heat pipe comprising outer wall 28 with sintered wick 12 to define an interior space, wherein the wick is made of ceramic particles (column 3, lines 3-24 and 33-36, and claim 4) for the purpose of achieving a desired heat transfer. Note that claim 3 discloses copper and ceramic powders are obvious variants of one another in wick materials.

Burgess et al discloses DCB bonding between copper and copper, and copper and ceramic for the purpose of providing a simple and economical method without the need of an intermediate metal layer (column 1, lines 25-34).

Since Dussinger et al and Yamamoto et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Yamamoto et al would have been recognized in the pertinent art of Dussinger et al.

Since Dussinger et al and Eastman are both from the same field of endeavor and/or analogous art, the purpose disclosed by Eastman would have been recognized in the pertinent art of Dussinger et al.

Since Dussinger et al and Burgess et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Burgess et al would have been recognized in the pertinent art of Dussinger et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Dussinger et al posts separate from the opposing walls for the purpose of ease of manufacture as recognized by Yamamoto et al, ceramic particles to form the wick for the purpose of achieving a desired heat transfer as recognized by Eastman, and DCB bonding for the purpose of providing a simple and economical method without the need of an intermediate metal layer as recognized by Burgess et al.

Regarding claims 9-11, Figure 1 of Dussinger et al discloses the porous structure 30 being a layer fully enclosing small diameter posts 26 on the opposing walls 18, 20.

Regarding claim 16, Figure 3 of Dussinger et al discloses a central region 31 coinciding with the heat source to define plural vapor and fluid channels, which is similar to applicant's Figure 5.

Regarding claim 22, in the combination, Figure 19 of Yamamoto et al discloses wick 11 on both opposing walls 2, 6. To employ DCB bonding as taught by Burgess et al would have been obvious as set forth above.

Regarding claim 23, Eastman discloses a round heat pipe 10.

Regarding claim 38, copper stays are inherent in the DCB bonding of Burgess et al.

#### ***Response to Arguments***

The objection to claims 5 and 36 under 37 CFR 1.75(c), is withdrawn in view of the claim cancellations.

The rejection in view of Lindemuth et al is withdrawn in view of applicant's remarks.

Note that the secondary reference to Burgess et al is referenced in applicant's specification.

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

No further comments are deemed necessary at this time.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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/ LEONARD R. LEO /  
PRIMARY EXAMINER  
ART UNIT 3744

June 10, 2008